

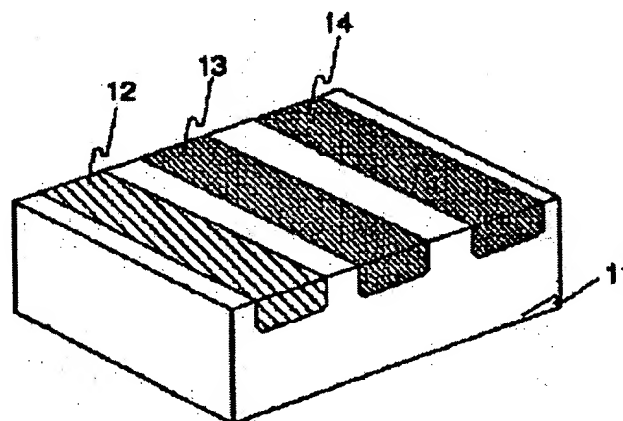
## Si LIGHT EMITTING DEVICE AND ITS MANUFACTURE

**Patent number:** JP5335624  
**Publication date:** 1993-12-17  
**Inventor:** NISHIDA AKIO; others: 03  
**Applicant:** HITACHI LTD  
**Classification:**  
- **International:** H01L33/00  
- **European:**  
**Application number:** JP19920138333 19920529  
**Priority number(s):**

### Abstract of JP5335624

**PURPOSE:** To form a plurality of light emitting elements in the surface layer of an Si substrate by easily controlling their light emitting wavelengths by forming resistivity-controlled areas in the surface layer of the Si substrate by adding impurities into the surface layer and performing anodic chemical treatment on the areas.

**CONSTITUTION:** When three areas having different resistivity values are formed by adding impurities to a plurality of specific areas of an Si substrate 11 by implanting ions into the areas at different injecting amounts and heat-treating the areas and anodic chemical treatment is performed on the three areas, porous Si layers 12, 13, and 14 having different porosities are formed. Since the porosities of the porous areas become larger as the resistivity values of the areas become smaller and the light emitting wavelengths of the impurity-added areas shift to short-wavelength sides as the resistivity values of the areas become smaller, the light-emitting wavelengths of the porous layers can be easily controlled by changing the resistivity values of the areas. Therefore, a light emitting device provided with an electric circuit which controls light emission by injecting an electric current can be formed on an Si substrate when a plurality of light emitting areas having different light-emitting wavelengths is formed in the surface layer of the Si substrate by adding impurities into a plurality of areas.



Data supplied from the esp@cenet database - Patent Abstracts of Japan

**BEST AVAILABLE COPY**